

WHAT IS CLAIMED IS:

- 1 1. A computer implemented method for tracing an execution path through
2 application components distributed over at least one computer in a data processing system,
3 comprising the steps of:
4 generating a tracing token, activating data collection, and relaying said tracing
5 token in one of said application components distributed over at least one computer; and
6 detecting said tracing token, activating data collection, and relaying said tracing
7 token in at least one of said application components.
- 1 2. The method of claim 1, wherein said application components include at
2 least one of application programs, plug-in programs, program extensions, static library programs,
3 dynamic library programs, program scripts, and individual modules, or subroutines, or functions,
4 or procedures, or methods thereof.
- 1 3. The method of claim 1, wherein said application components reside in the
2 same computer, or are distributed over multiple computers interconnected by at least one of a
3 local area network, a wide-area network, a wireless network, or the Internet.
- 1 4. The method of claim 1, wherein said generating a tracing token is
2 controlled by a start rule and a stop rule.
- 1 5. The method of claim 1, wherein said tracing token is a unique value in
2 said data processing system.
- 1 6. The method of claim 1, wherein said unique value includes a universally
2 unique identifier (UUID)
- 1 7. The method of claim 1, wherein said relaying of said tracing token is
2 accomplished through at least one of reading and writing of a shared memory, attachment to an
3 inter-process message, and insertion into a data stream.
- 1 8. The method of claim 7, wherein said attachment to an inter-process
2 message includes at least one of a non-intrusive modification of the message header, a non-
3 intrusive modification of the message body, or appending to the message.

1 9. The method of claim 8, wherein said non-intrusive modification of the
2 message header includes at least one of adding a new field in a SOAP transport header over
3 HTTP, or adding a new property in a SOAP transport header over JMS.

1 10. The method of claim 8, wherein said non-intrusive modification of the
2 message body includes the insertion of a comment in an SQL statement.

1 11. The method of claim 1, wherein said tracing an execution path through
2 application components takes place in at least one of system production time, system
3 development time, system integration time, or system testing time of said data processing
4 system.

1 12. The method of claim 1, wherein said generating a tracing token is
2 automatically triggered by detection of a system event.

1 13. The method of claim 12, wherein said detection of a system event is
2 dynamically activated and deactivated.

1 14. The method of claim 13, wherein said dynamic activation and deactivation
2 of said detection of a system event are controlled internally in said one of said application
3 components, or externally to said one of said application components.

1 15. The method of claim 12, wherein said system event includes at least one
2 of an event relating to system and application performance, system and application availability,
3 system and application troubleshooting, or system and application security.

1 16. A computer implemented method for tracing an execution path through
2 application components distributed over at least one computer in a data processing system,
3 comprising the steps of:
4 installing monitoring code in a first plurality of said application components for
5 detecting system events;
6 installing monitoring code in a second plurality of said application components
7 for detecting tracing tokens;

8 detecting one of said system events, activating data collection, and generating and
9 relaying one of said tracing tokens in one of said first plurality of said application components;
10 detecting and relaying said generated one of said tracing tokens to activate data
11 collection in at least one of said second plurality of said application components along said
12 execution path through said application components in said data processing system; and
13 recording said collected data in all said application components along said
14 execution path through said application components in said data processing system.

1 17. The method of claim 16, wherein said first plurality of said application
2 components includes entry points for client enquiries to an n-tier client/server distributed
3 computing system.

1 18. The method of claim 16, further comprising the step of providing storage
2 means for said collected data for all said application components along said execution path
3 through said application components in said data processing system.

1 19. The method of claim 18, wherein said storage means includes at least one
2 of files, registries, relational databases, and object databases.

1 20. The method of claim 16, wherein a record of said collected data includes:
2 the value of one of said tracing tokens;
3 the value of a computer's timestamp;
4 the identifier of a computer;
5 the identifier of one of said application components;
6 the description of one of said system events;
7 application data from operation.

1 21. The method of claim 16, wherein said monitoring code is installed in at
2 least one of the source code, the object code, the executable code, and application extension
3 mechanism of said application components.

1 22. A computer program product comprising:
2 computer usable medium having computer readable program code means
3 embodied therein for tracing an execution path through application components distributed over

4 at least one computer in a data processing system, the computer readable program code means in
5 said computer program product comprising:
6 computer readable program code means for installing monitoring code in a first
7 plurality of said application components for detecting system events;
8 computer readable program code means for installing monitoring code in a second
9 plurality of said application components for detecting tracing tokens;
10 computer readable program code means for detecting one of said system events,
11 activating data collection, and generating and relaying one of said tracing tokens in one of said
12 first plurality of said application components;
13 computer readable program code means for detecting and relaying said generated
14 one of said tracing tokens to activate data collection in at least one of said second plurality of
15 said application components along said execution path through said application components in
16 said data processing system; and
17 computer readable program code means for recording said collected data in all
18 said application components along said execution path through said application components in
19 said data processing system.